

ruined. The hail-belt was about one half of a mile in width, and extended from northwest to southeast.

Minnesota.—Lake Benton, Lincoln county: the hail storm of the evening of the 19th was one of the severest that has ever visited this section. A number of farmers in this locality sustained heavy losses, their crops being badly damaged, and in some instances fields of grain were entirely destroyed.

Nebraska.—Johnson, Nemaha county: at 12.30 p. m. of the 13th a very destructive hail storm occurred in this county. The path of the storm was about two miles in width and seven miles in length. The damage to crops in this locality is estimated at \$20,000. The hailstones varied from one-eighth to three-fourths of an inch in diameter, were very hard and of irregular shapes.

Louisville, Cass county: a very severe hail storm occurred at this place on the 13th. Window-glass was broken in nearly every house in the town. Crops in the locality were completely ruined.

Austin, Sherman county: hail storms occurred at this place on the 11th and 15th, causing damage to crops.

New Jersey.—Ocean Beach: a severe hail and wind storm passed over this place during the night of 12th–13th, breaking many windows and causing other damage. A large barn was demolished and several buildings were unroofed.

New York.—Albany: a severe hail storm passed over this place during the night of the 12–13th, doing great damage to crops and fruit trees, and breaking many windows.

Pennsylvania.—Lancaster, Lancaster county: reports from various parts of this county show that the hail storm of the night of the 28th–29th destroyed more than 1,000 acres of growing tobacco.

Wisconsin.—Eau Claire, Eau Claire county: a severe hail and thunder storm occurred in this vicinity on the afternoon of the 3d, doing great damage to buildings, crops, etc. The storm was especially severe in the vicinity of New Chicago and Mondovi; at the latter place five barns were destroyed.

Hail storms of less severity occurred in the various states and territories as follows:

Arizona.—Fort Bowie, 26th; Fort Grant, 31st.

Arkansas.—Little Rock, 4th and 8th.

Colorado.—Fort Lewis, 3d; Pike's Peak, 4th; Fort Garland, 21st.

Dakota.—Fort Yates, 10th and 15th; Yankton, 15th; Deadwood, 22d; Bismarck, 23d.

Georgia.—Atlanta, 24th; Brunswick, 26th.

Illinois.—Morrison, 11th; Riley, 21st.

Indiana.—Logansport, 4th; Indianapolis, 12th.

Iowa.—Independence, 12th; Cresco, 15th and 18th; Monticello and Davenport, 20th.

Kansas.—Topeka, 10th.

Maine.—Gardiner, 31st.

Michigan.—Thornville, 3d; Swartz Creek, 4th; Fort Brady, 11th; Ionia, 16th; Lansing, 21st.

Montana.—Fort Keogh, 6th.

Nebraska.—Marquette, 12th; Genoa, Fremont, and Red Willow, 13th.

New Hampshire.—Grafton, 4th; New Market, 4th and 5th; Mount Washington, 29th, 30th, and 31st.

New Mexico.—Fort Cummings, 12th; Fort Union, 15th; Fort Wingate, 18th.

New York.—Factoryville, 2d and 3d; Menand station (near Albany), 12th.

North Carolina.—Lenoir, 28th.

Pennsylvania.—Wellsboro', 2d; Leetsdale and Grampian Hills, 23d.

Tennessee.—Austin, 2d; Nashville, 3d and 24th.

Wisconsin.—Ripon, 2d; Sussex, 16th; Neillsville, 21st; Beloit, 22d.

SNOW.

Snow fell on the summit of Pike's Peak, Colorado, on the following dates: 4th, from 6th to 9th, 13th, 14th, 15th, 27th. The

total depth of snowfall for the month was about twenty-three inches, of which amount more than eighteen inches fell during the snow storm of the 6th and 7th. At the end of the month the snow had not entirely disappeared from the ground.

The "Lancaster (New Hampshire) Republican," of August 1st, states that, during last week, Colebrook (Coos county) was visited by quite a heavy hail and snow storm. The area over which the storm prevailed was only about one mile in width, and two miles in length. Snow fell to a depth averaging nearly six inches.

SLEET.

Sleet fell on the summit of Pike's Peak, Colorado, on the 4th, 5th, 9th, and 24th.

Table of rainy and cloudy days, relative humidity, and dew-point for July, 1883.

Districts.	Rainy days.	Cloudy days.	Rel. humidity. *	Dew-point.
			Percentages.	°
New England.....	From 8 to 14	From 1 to 5	From 70.8 to 82.2	From 52.9 to 63.9
Middle Atlantic states.....	" 6 " 18	" 1 " 6	" 60.2 " 81.7	" 59.1 " 69.3
South Atlantic states.....	" 8 " 18	" 1 " 12	" 60.8 " 81.5	" 63.8 " 76.7
Florida peninsula.....	" 10 " 15	" 1 " 4	" 69.4 " 73.9	" 73.0 " 74.4
East Gulf.....	" 9 " 15	" 0 " 2	" 65.1 " 76.0	" 68.3 " 73.5
West Gulf.....	" 4 " 14	" 1 " 5	" 66.4 " 78.7	" 69.9 " 74.6
Tennessee.....	" 14 " 18	" 2 " 8	" 63.6 " 75.9	" 63.8 " 69.2
Ohio valley.....	" 11 " 15	" 4 " 6	" 64.0 " 70.7	" 60.1 " 65.1
Lower lakes.....	" 13 " 23	" 3 " 9	" 66.9 " 75.9	" 58.3 " 61.3
Upper lakes.....	" 11 " 21	" 5 " 9	" 65.4 " 80.3	" 50.9 " 60.2
Extreme northwest.....	" 10 " 14	" 3 " 4	" 60.9 " 75.0	" 50.1 " 55.3
Upper Mississippi valley.....	" 11 " 17	" 4 " 10	" 67.2 " 71.5	" 59.0 " 63.3
Missouri valley.....	" 11 " 14	" 4 " 7	" 66.1 " 75.8	" 56.9 " 64.6
Northern slope.....	" 3 " 12	" 0 " 5	" 38.5 " 64.5	" 35.6 " 58.6
Middle slope.....	" 5 " 15	" 5 " 9	" 41.3 " 59.1	" 45.6 " 59.7
Southern slope.....	" 3 " 9	" 2 " 5	" 61.6 " 63.8	" 59.9 " 62.9
Southern plateau.....	" 2 " 21	" 0 " 7	" 45.9 " 60.4	" 52.2 " 56.7
Northern plateau.....	" 0 " 1	" none	" 33.4 " 43.8	" 42.2 " 45.1
North Pacific.....	" 0 " 3	From 0 " 1	" 55.0 " 62.2	" 48.4 " 52.7
Middle Pacific.....	" none	" 0 " 7	" 33.1 " 90.4	" 49.1 " 56.3
South Pacific.....	From 1 " 6	" 0 " 1	" 51.0 " 72.8	" 59.3 " 69.5
Mt. Washington, N. H.....	Fourteen	Four	70.8	59.2
Pike's Peak, Col.....	Nineteen	One	71.7	29.8
Salt Lake City, Utah.....	Six	Two	31.7	42.1

* Relative humidity corrected for altitude.

COTTON REGION REPORTS.

Temperature and rainfall observations were continued during the month of July, 1883. The averages for the various districts are determined from observations taken at the stations, as shown on chart vi., issued with the REVIEW for April, 1882. For the purpose of comparison, the averages for July, 1883, with the departures, are also given in table below.

It will be seen from this table, that the rainfall for July, 1883, when compared with that of July, 1882, shows large deficiencies in nearly all districts. The means of the maximum temperatures have been higher in all districts, except for the district of Galveston, where there is no change; and the means of the minimum temperatures have also been higher in all districts, except for the district of Little Rock, where it is 1° 5 lower.

Meteorological Record of the Cotton Districts for the months of July, in 1882 and 1883.

Districts.	Rainfall in inches.			Temperatures.						Extremes for July, 1883.	
				Mean of the maxima.		Change.	Mean of the minima.		Change.		
	1882.	1883.	Deficiency.	1882.	1883.		1882.	1883.		Max.	Min.
New Orleans.....	8.30	3.30	— 5.00	90.4	93.2	+ 2.8	71.3	74.4	+ 3.1	104	62
Savannah.....	6.21	3.42	— 2.79	91.0	95.7	+ 4.7	70.3	72.7	+ 2.4	107	55
Charleston.....	7.28	4.40	— 2.88	90.9	94.6	+ 3.7	68.0	72.1	+ 4.1	104	53
Atlanta.....	5.45	1.24	— 4.21	87.9	93.2	+ 5.3	67.6	69.4	+ 1.8	102	47
Wilmington.....	4.90	3.16	— 1.74	90.2	93.2	+ 3.0	67.7	70.2	+ 2.5	105	60
Memphis.....	5.45	4.00	— 1.45	88.0	91.4	+ 3.4	67.1	68.3	+ 1.2	101	57
Galveston.....	3.74	2.15	— 1.59	94.0	94.0	0.0	71.3	73.7	+ 2.4	104	50
Vicksburg.....	10.30	3.48	— 6.82	89.4	92.2	+ 2.8	69.0	72.3	+ 3.3	99	61
Montgomery.....	5.18	1.65	— 3.53	88.6	95.3	+ 6.7	67.1	69.8	+ 2.7	101	53
Augusta.....	4.93	1.94	— 2.99	90.0	94.5	+ 4.5	69.2	72.7	+ 3.5	107	58
Little Rock.....	3.08	2.39	— 0.69	89.2	94.2	+ 5.0	66.0	64.9	— 1.1	101	49
Mobile.....	6.06	1.37	— 4.69	90.5	97.4	+ 6.9	68.7	71.0	+ 2.3	107	59

WINDS.

The prevailing directions of the wind for the month of July, 1883, are shown on chart iii., by arrows flying with the wind. East of the Mississippi river the prevailing winds were, with